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THE FEDERAL ROLE IN AGRICULTURAL RESEARCH

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About six weeks ago I was out in California for one of our public meetings on the structure of agriculture.

I was asked a question about agricultural research, and in the course of my answer I said:

"I do not think that federal funding of (research into) labor-saving devices is a proper use of federal money. This is something to be left to private enterprise and to the state universities...But I will not put federal money into any project that results in the saving of farm labor. The economic incentives in the marketplace should be powerful enough so that that kind of research work can be done by private enterprise."

Some people took kindly to what I said. But I'm sure many of you know that others did not.

The farm labor people liked what I said. And so did a lot of folks in parts of the country where small-scale agriculture is the norm and not the exception.

But in large-scale agribusiness circles, and in some of the land grant colleges, my remarks were interpreted to mean that I was going to cut off federal funding of all mechanization research--that this marked an abrupt shift in federal policy--and that it threatened the long-time research relationship of USDA with the states and the land grant institutions.

A spokesman for the California Department of Food and Agriculture put it this way in a radio broadcast a few weeks ago:

"The uproar was so widespread and was echoed by so many agriculturalists and educators across the country that it now appears that Secretary Bergland may be changing his mind."--unquote.

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Remarks prepared for delivery by Secretary of Agriculture Bob Bergland before administrators and program staff people from all units of USDA's Science and Education Administration, Sheraton Conference Center, Reston, Virginia, January 31, 1980

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Well, they're wrong on all four counts.

I have no intention of cutting off federal funding of all research into mechanization.

What I said was not a departure from traditional policy.

What I intend to do won't break up the research relationship of USDA with the states and the land grant colleges.

And I have not changed my mind about the fundamental point I tried to make in Fresno.

Now because some of you people are close to this particular issue, I'm going to take this opportunity to elaborate on my views about the proper role of the federal government in agricultural research. I want to do this because part of the misunderstanding over the Fresno remarks may have been my own fault. The answer I gave to a question about so complex an issue was too brief to do justice to it. And I used some phrases that weren't very precise.

The words "labor saving", for example, have more than one meaning. That phrase can mean replacing workers with machines. But it can also mean easing the drudgery of work. And I have no objection to R&D that can lighten a person's workload.

What's more, even labor displacement can be positive as well as negative. When machines replace a significant number of jobs that men and women need and seek, that's bad. But when machines are used because the labor force in a particular area can't fill the work requirement--or when they enhance the competitive status of an individual operator without large-scale labor displacement--that's another story.

#### Statement of Intent

All of that said, let me now restate my intention regarding the use of federal money to finance agricultural research:

The USDA will not put federal money into research where careful review and analysis clearly indicate that the direct and immediate benefits will go to a relative few in a limited number of locales while--

1. neither serving the national interest nor benefiting the general public;

2. posing a direct or indirect threat to social stability, our natural resource base, the environment, national security or the economic well-being of a significant number of citizens.

In the specific case of mechanization research, this means that we will not put federal money into research where--other factors being equal or neutral--the major effect of that research will be the replacing of an adequate and willing work force with machines.

Again, I believe that the economic incentives of the marketplace should be powerful enough so that this kind of research can be done by private enterprise--either by itself or with the help of states that are willing to help.

Let me take this one more step:

I find it difficult if not impossible to justify the use of federal funds to finance research leading to the development of machines or other technologies that may increase production and processing efficiency but at the same time damage the soil, pollute the environment, displace willing workers, and reduce or eliminate competition.

I do not believe a federally financed research effort ought to benefit a small number of individuals, corporations or narrow interest groups to such an extent and in such a way as to make it possible, in time, for the beneficiaries to gain control of the farm to market structure, monopolize the sources of finance at every step, and increase their profits by selling what may well be an inferior product at a price that is insulated from competition.

Admittedly, this is a worst case example. But you know and I know and the media knows that there are cases where many of these factors have been involved. And even in those instances where competing interests are accommodated to some extent, it is difficult to justify federal research funding if it is clear that a small group of citizens benefit directly, immediately and disproportionately from the fruits of that research.

My decision to eliminate such instances is based on these premises:



1. The tax base that provides federal funds--including those spent on research--is a national base. Since revenue is collected from taxpaying citizens of every region, state, county and local community, it follows that the revenue collected should be spent on research that promises to benefit the broadest base of American citizens.

2. One of the key roles of government is to provide for the people what the people cannot be expected to provide for themselves. Highways, public schools and hospitals, libraries, fire and crime protection, and a common defense come immediately to mind, and, in this specific instance, research that is basic, sometimes long range, high risk in that it offers only limited prospects for an early return on investment, and anticipates and avoids counterproductive economic and social effects.

3. Under present economic conditions and national security considerations, it is even more imperative that federal dollars be spent frugally, wisely and equitably to bring maximum benefit to the maximum number of citizens and minimum disadvantage to the fewest possible.

#### Consistent with Policy and Directives

I believe that my view of the proper use of federal money in agricultural research is consistent with traditional policy and in keeping with the research responsibilities assigned to the USDA by the Food and Agriculture Act of 1977. Nor is there any reason why meeting these responsibilities should disrupt the research partnership the USDA has with the individual states and the land grant institutions.

This unique triad approach to providing the benefits of science and education to agriculture and the rural community dates to July 2, 1862, when President Lincoln signed the Morrill Act. That legislation gave states and territories public lands upon which to build colleges of agriculture. Though it was an Act of Congress that led to the establishment of the land grant colleges, these institutions are supported primarily by money appropriated by state legislatures.

The Hatch Act of 1887 strengthened the agricultural science base by putting agricultural experiment stations in every state and providing federal formula funds to finance research at those stations. Today, though the states and private sources provide four of every five dollars in experiment station funding, federal funds continue to provide a common tie with the USDA.

In 1914, the Smith Lever Act provided that agricultural extension work should be carried out in cooperation with the USDA and that the work be done in connection with the land grant colleges. Smith Lever also provided federal formula funds, created the Extension Service, and established a system to bring scientific information, and help in its application, to farmers and other residents of rural communities. This legislation linked states and county governments to the federal government in their common support of research and extension.

#### Allocation of Research Responsibilities

Of particular importance here is the allocation of research responsibilities within the triad. Federal research funds appropriated for the Department of Agriculture's Science and Education Administration's Agricultural Research are to respond to major national priorities. Within the context of national priorities, federal funds allocated to the states are to respond to regional and state priorities, while research and extension undertaken with state and county funds are to respond to the specific priorities of the various state and local areas.

Explicit in this division of research responsibilities is the understanding that federal research funds--whether expended for USDA "in-house" projects or in formula funding of joint research projects--are only to be used to serve the national interest and meet the nation's broadest economic and social objectives.

#### Changing Priorities

Because the state of the nation and the nation's relationship with the rest of the world changes over time, national research priorities must change to keep pace and remain appropriate. We are now experiencing one of those periods of change.



Example: For the past 50 years or so, agricultural research, private as well as public, has concentrated on improving food and fiber productivity. Central to this effort was more and more reliance on cheap and abundant energy which made it possible to substitute mechanical power for human and animal power and to use petro-chemicals to keep the land productive and crops protected.

#### New Realities

We no longer have cheap and abundant supplies of energy. And we have learned that mechanical and chemical technology can exact a high price in terms of erosion, pollution and human health. Thus agricultural research, and especially research funded with federal dollars, must now respond to national priorities based on new--and often harsh--realities.

USDA launched its response even before the directives of the Food and Agriculture Act of 1977 were enacted into law.

Early in the administration, I called for the justification of each of the thousands of research projects USDA had initiated. I decided those projects that could and should be financed by private enterprise or the states should be closed out. At the same time, I ordered a reduction in in-house research and an expansion in extramural contracts and competitive grants. I did that to hold down the size of the federal work force and provide greater flexibility in meeting changing research needs.

We in USDA recognized, and the Congress recognized in the 1977 Act, that many of the new national priorities called for a renewed emphasis on basic research because known scientific principles and technological approaches had been so thoroughly exploited that it was unlikely we could achieve further major quantitative and qualitative advances in food production.



The 1977 act called for new federal research into alternative fuels, human nutrition, environmental problems caused by technological changes in food and agricultural production, improving the management and use of the nation's natural and renewable resources--timber, water and soil, energy conservation, climate, drought and weather modification, export market expansion, more efficient and environmentally sound methods of producing, processing, marketing and using food, fiber, waste products and forest and rangeland products, and new crops.

The need to concentrate federal research on such national priority projects has now become clear, and is reflected by the proposed increases in the agricultural research budget for fiscal 1981. I believe the bulk of the additional funds will be used for basic--rather than applied--research.

We are now concentrating federal money in the research areas where neither the states nor private enterprise can be expected to assume major responsibilities: basic crop and animal research, energy, integrated pest management, food additives, human nutrition, aerospace technology to develop better information on how weather fluctuations affect crops, and non-point source pollution from water runoff from farmland.

One example--organic fixation of nitrogen--may indicate how basic crop research may serve the national interest. We use 15 million tons of ammonia fertilizer on our farms today, and some 50,000 cubic feet of natural gas is required to produce each ton. If federally-financed research can develop a strain of wheat that can take nitrogen from the air and fix it in the soil, the savings in natural gas will be enormous.

Our new research program on integrated pest management--where parasites and bacteria are employed to control certain plant diseases and animal pests--holds promise of reducing our dependence on petro-chemicals for crop and animal protection--and that, too, could mean a substantial savings in petroleum fuel.

At the same time that we are using federal dollars to finance this kind of national priority research, I have been urging the states to assume the major responsibility for varietal research work and private enterprise to assume the prime responsibility for research in mechanization and labor-saving technology.

New research and education programs have been initiated in the Department's Science and Education Administration and in cooperating state institutions to: provide direct educational, technical and organizational assistance to the operators of small farms and their families, help them identify and clarify their goals, needs, resources and opportunities, and assess alternative ways of using their resources to respond to needs and opportunities.

Research is also under way to develop the technology small farm operators and their families need to increase income and improve their quality of living, and to determine the most effective ways to deliver assistance, including appropriate technology, to small farms.

A number of other research and education initiatives to help small farmers and their communities have been initiated, are in the process of being developed, or await funding.

### Conclusion

It seems to me that the obvious importance of making every dollar count in carrying out a research agenda to meet new national priorities calls for an independent, objective review of research projects where federal money is involved.

This kind of intensive review is especially needed where--as in the case of research leading to large-scale labor displacement through mechanization--there is a serious question as to whether the research truly serves the national interest or merely increases the profits of a small group of citizens or businesses.

Beyond that consideration, lies a broader challenge for the future.



Until recently, agricultural research was evaluated almost exclusively in terms of what that research promised in the way of volume productivity gains. Too often potentially negative economic and social effects were not factored in to the evaluation.

What did this do? It skewed cost-efficiency statistics and distorted perspective. If this is not remedied in the research evaluation process, it will surely handicap our ability to meet changing national priorities.

For all of these reasons, I am appointing a special task force drawn from the standing membership of the National Agricultural Research and Extension Users Advisory Board and the Joint Council and co-chaired by Susan Sechler, USDA's Deputy Director of Economics, Policy Analysis and Budget, and James Nielson, Deputy Director for Joint Planning and Evaluation in SEA. This task force will be charged with the responsibility of establishing a specific set of criteria and a procedure for evaluating case-by-case those current and future research projects involving federal expenditures.

At this point, I'm sure no one knows how many--or how few-- research projects involve the dubious use of federal money. With regard to research in mechanization that could lead to large-scale labor displacement, our initial estimates do indicate that under the fiscal 1980 budget at least a million dollars in federal funds are involved.

Some \$400,000 of that total is going to the individual states under formula funding to help finance from 15 to 20 projects. The remaining \$600,000 or so directly finances some 6 to 12 such projects under the Department's agricultural research program.

It is possible that these numbers do not reflect the full dimensions of federal involvement, so the task force I am appointing will determine whether the figures should be revised.

But even if the criteria and evaluation process established by the task force were to rule out the federal funding eligibility of all of the current projects involving possible large-scale labor displacement through mechanization--and this is highly unlikely--I believe the resulting shortfall in funding could be met by private enterprise, with or without the help of the states.

But the amount of federal money involved is not the crucial issue. I hope what I have said here today convinces you that what is really at stake here is the integrity of federal research policy.

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